Revised 1/10

Master Syllabus

MATH 2020 - Elementary Statistics (3, 0, 3)

Maximum Enrollment: 28

Special Facility or Equipment Needs/Safety Rules and Issues: None

Lab Fee: None

Course Description:
This course provides an introduction to descriptive and inferential statistics that is intended to give an understanding of statistical techniques and applications in a wide variety of disciplines. Topics include descriptive statistics, hypothesis testing, and elementary probability theory, elements of sampling theory, correlation and regression. A graphing calculator is required.

Prerequisites: A grade of "C" or better in MATH 1100

Text and Materials:
Sullivan, Michel, III. Fundamentals of Statistics. 2nd ed. Boston, MA: Pearson Education, 2008.
or
Sullivan, Michel, III. Fundamentals of Statistics. 3rd ed. Boston, MA: Pearson Education, 2011.
(Ask Instructor which Edition they are using)

Supplies: A graphing calculator is required.

Course Goals:
The student will acquire a fundamental understanding of the language and techniques of basic statistics and will be able to function more effectively as a consumer and citizen when confronted with statistically-based claims, conclusions, and results. Moreover, the student will be able to read and understand statistically-oriented journal articles in his or her area of interest and will be able to apply basic statistical inference to applications in the life sciences, the social sciences, and business. This course satisfies the requirement of a second mathematics course for an associate degree in Liberal Arts, General Studies, or Early Childhood Education. It will also transfer to serve as a mathematics elective for many four-year degree programs.

Course Objectives:
Upon completion of this course, the student will be able to

- use the language of statistics properly to communicate statistical ideas in both written and verbal form;
- use graphs to effectively represent data;
- describe data using measures of central tendency, dispersion, and position;
- describe a sampling distribution;
- understand the properties of the normal distribution and be able to find probabilities for a normally distributed variable;
- understand the properties of estimators of population means and be able to find corresponding estimates from sample data;
- state appropriate hypotheses and alternatives concerning population means and proportions and test these using sample data;
- examine relationships between two quantities by using graphs, correlations, and regression lines;
- read an article containing a significant amount of mathematics at the level of the course and write a critical paper.

Course Content/Outline:
Topics include measures of central tendency, dispersion, and position; correlation and regression; probability and probability distributions; the Central Limit Theorem; parameter estimation; hypothesis testing; estimation for means, proportions, and variances; uses of Chi-square distribution; and analysis of variance.

_Observational Studies, Experiments, and Simple Random Sampling
_The Design of Experiments
_Organizing Qualitative and Quantitative Data
_Measures of Central Tendency, Dispersion and Position
_The Five-Number Summary and Boxplots
_Scatter Diagrams and Correlation
_Least-Squares Regression
_Probability Rules
_The Addition Rule and Complements
_Independent and the Multiplication Rule
_Counting Techniques
_Discrete Random Variables
_The Standard Normal Distribution

Assessment:
There will be three or four tests and a comprehensive final exam. Instructors should also use additional assessment such as graded homework, quizzes, projects, reports and other writing assignments, group activities, and portfolios. The grading scale is as follows: A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: 0-59.

Reading and Writing Across the Curriculum:
At least one assessment item mentioned above must be assigned with reading and writing components which satisfies the Reading/Writing Across the Curriculum requirement as stipulated in SLCC's academic policy.

Attendance Policy:
If a student misses more than 10% of the classes, he may be dropped from the course with a grade of "W" or may receive a grade of "F".

Students with Disabilities:
Students with disabilities who may require assistance or accommodation or with questions related to any accommodation for testing, note takers, readers, etc., should contact the instructor as soon as possible. Students may also contact the Dean of Students with questions about such services.

Emergency Evacuation Procedure:
A map is posted in the front of the building marking the evacuation route and the Designated Rescue Area. This is an area where emergency service personnel will go first to look for individuals who need assistance in exiting the building. Students who may need assistance should identify themselves to the teaching faculty.